Notes and Observations on

Ophthalmic Work.

T H E S I S .

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Most of the following ''Notes and observations on ophthalmic work'' were taken by me during the summer of 1894 whilst acting as non-resident house surgeon to Dr Argyll-Robertson at the Eye Wards of the Royal Infirmary, Edinburgh. Dr Robertson kindly granted me permission to make use of the large and varied number of ophthalmic patients under his care for this thesis. Some of the notes are taken from the ward journals where I recorded reports of the cases; others are extracts from my own note book.

Before passing to consider in detail the number and nature of the various diseases of the eye which came under my observation, it may be worth noting that the Census Returns for the last thirty years shew a gradually diminishing number of cases of blindness in the population of Scotland. In the Census of 1871, the total number of inhabitants returned as blind was 3,019, or one in every 1,112, of the population. In 1881 the total blind was 3,158, or one in every 1,182, and in the last Census, viz, that of 1891, the total blind inhabitants was only 2,797 or one in every 1,439 of the population. This improvement is very gratifying, and is no doubt largely due to the great progress that was and is being made in the medical and surgical treatment of the various eye diseases and the successful carrying out of these measures by our ophthalmic surgeons.

The number of fresh cases which I noted specially at the

eye wards was eleven hundred and twenty six, besides upwards of a thousand old patients. Of these patients as a whole I would wish to state two important facts which struck me very forcibly. First, out of the total number, not one single case was positively diagnosed as being directly due to the action of the tubercle bacillus. There were two cases of a doubtful tubercular nature. One of these occurred in a girl affected with lupus vulgaris of the face. The centre of her right cornea had a peculiar clear bleb like elevation, which it was thought might possibly be a lupoid affection of that tissue. The other case occurred in a girl also. Her selerotic was much injected and swollen at parts, especially underneath the upper eyelid. This condition had lasted for over a year, and instead of improving under the ordinary treatment for inflammation of the selerotic, was getting stead--ily worse. It was thought to be of a tubercular nature. But although I was constantly on the watch, no case of tuber--cular disease of the conjunctiva, or of the iris, or miliary tubercles of the choroid, or optic neuritis sometimes seen in tubercular meningitis was met with. No doubt some of the cases had the prefix " strumous" applied to them, such as strumous ulcers of the cornea, and strumous blepharitis. This term, however, was applied in a general way as in other affections, meaning rather an inflammatory condition occurring in individuals of weakly looking appearance, and having an

apparent predisposition to the development of the tubercle bacillus, but the bacillus not causing so far as is known, the actual inflammation present.

This fact shews the great immunity which the eye enjoys from tubercular disease, and the strong natural resisting power which the tissues of the eye present to the invasion of the tubercle bacillus. This power of resisting the attacks of the bacillus of tubercle must be much more highly developed in the eye than in the majority of the other organs and tissues of the body. In the other departments of surgery tubercular diseases are met with very frequently, such as dis--eases of glands, bones and joints. Then tubercular ulcer--ation of the larynx is not so very uncommon . In fact, diseases, the result of tubercular infection fill a good half of the beds on the surgical side, and not a few also on the medical side of all general hospitals. Why then, one may ask, is tubercular disease of the eye so rare? This is not an easy question to solve. Tubercle bacilli along with other micro-organisms are present in the air in many places;- for example, the atmosphere of our hospital wards. In all likelihood these bacilli frequently come in contact with the external surface of the healthy eye, landing on its conjunctival cul-de-sac. This immunity then probably does not depend on the absence of the infecting agent. Even although the cornea and conjunctiva have their vitality lowered

by a trauma or an inflammatory condition, the bacillus very rarely effects a development. A probable important factor in hindering the growth of micro-organisms, and especially the tubercular organism, is that the eye is exposed to much bright sunlight and abundance of fresh air, which agents pre--vent to no small extent the development of micro-organisms generally. These potent agents, will, no doubt, have the same effect here.

The secretions, conjunctival and lacrimal which are con--stantly flowing away and being renewed, will help to remove many bacilli from the external surface of the eye. But, in addition, these secretions probably have (like the nasal secretions[1]) some special action on the bacilli themselves, exerting an inhibitory action on their growth, or rendering them harmless.

Then the tissues of the conjunctiva and cornea, and the nutrient fluids and different blood cells circulating in the same, must present a formidable barrier to their advance. Phagocytosis may also, when the leucocytes come in contact with the bacilli, help to remove them as in wounds, etc.

Another point worthy of notice is, that in Lupus vulgaris which is a form of tuberculosis attacking the skin, caused

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(1 Le pouvoir bactericide du mucus nasal. Ann. des maladies dell'oreille etc, 1893.)

either by the bacillus of tubercle gaining an entrance either by an abrasion of the skin, or it may have reached the skin by the vascular channels, however it may have gained access, when there, it does not shew the same tendency to spread and cause disintegration of tissue affected, as in other parts of the body. It seems as if the tissues of the eye had a similar, perhaps somewhat greater resisting power to the local development and spread of the tubercle bacillus. While the external surface of the eye is not very liable to tubercular mischief, by the tubercle gaining an entrance from without, the interior of the eye is sometimes affected with diseases due to tubercle. When such diseases occur, the tubercle bacilli probably reach the tissues in the interior of the eye by way of the blood or lymph stream, being thus evidence of that peculiar diathesis which allows the bacilli to gain the upper hand of the tissues of the body. But as I have stated already no cases of tubercular iritis, miliary tubercles of the choroid or optic neuritis occurring sometimes in patients affected with tubercular meningitis, was seen, so that tubercular dis-ease of the interior of the eye was equally uncommon. The eye does not follow the rest of the structures of the body as regards its local resistance to tubercular disease. The rule with, for example, a trauma of bone, is to predispose to tubercle. In tubercular disease of the knee joint, the inner condyle is much more frequently the seat of tubercular

disease than the outer condyle of the femur. Why? Because it is much more liable to strain.[1] Now the tissues of the eye are subject to many kinds of traumata, as foreign bodies in-juring the cornea, and blows on the surface of the eye are common, but these do not seem to predispose to the bacilli of tubercle, as I have already mentioned effecting a landing and development.

Thus the eye has good defensive arrangements. The nidus is evidently unfavourable for their development as is frequent-ly stated, and so their further multiplication is arrested. Predisposition evidently plays an important part in the occurren-ce of tubercular infection. This predisposition is probab-ly due to imperfection or the want of proper protective arr-angements. It looks, however, as if these defensive arrange-ments were almost of a perfect nature in our organ of sight.

I have come across only one observer[2] who is of opinion that tubercular disease of the eye is not a rare disease. This as I have already shewn is far from being my experience in eye affections, not one decisive case in over 2,000 patients having tubercular disease of the eye. In marked contrast to this apparent immunity of the eye from tubercular disease, was

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1. Stoker on Experiences of Excision of the knee joint for Tubercular Disease. 'Practitioner'. January 1896.

2. Ludwig Bach (Wurzburg) Tubercular Infection of the Eye. Archives of Opthalmology. xxiv,1.

the very great frequency, (and this is my second fact) with which it was affected by the virus of syphilis, which caused many serious diseases of that organ. I traced 34 patients in the 1,126 with affections of the eye, resulting from syphilis, congenital or acquired. These diseases will be referred to further on. They probably do not represent all the syphilitic cases, many more being suspected, as some of the cases of keratitis, choroiditis, optic atrophy, and eye affections the result of intracranial disease. These being of a doubtful nature were not put down as syphilitic. In addition, many old patients sought further treatment of the results of old syphilitic affections of the eye, as corneal opacities, iritic adhesions and choroidal diseases.

The eye seems to be one of the organs of the body which is most frequently attacked by syphilis. It is thus evident that the resisting power of the eye to syphilis, as with the rest of the body, is practically nil, thus being vastly different to its resistance to the virus of tubercle. As to the actual manner in which syphilis is concerned in producing those various eye diseases, very little if anything is known. One might, in trying to discover the reason of greater fre--quency of syphilitic diseases of the eye compared with tuber--cular diseases, look into the modes of transmission or acquisition of the two diseases. Inherited (congenital) syphilis is transmitted to the child by the mother or father

or both of the parents. The syphilitc poison being in this case conveyed by the spermatozoid or the ovum. This is pro--bably not the case with the tubercular virus which is in nearly all the cases born of tubercular parents, not transmitted by the parents to the children by the spermatozoid or ovum, but only the predisposition for its development at some future time. The actual bacillus which is the cause of the disease being but on the rarest occasions transmitted.[1] So that whereas the blood and fluid tissues of the body contain the syphilitic poison, which may reach the eye, the children born of tubercular parents have not in all probability the bacilli of tubercle circulating throughout the system in the same way. This may to some extent help to explain the higher degree of immunity which the eye possesses from tubercular disease, and the greater frequency with which it is attacked by syphilitic disease.

I now purpose to consider the cases classed under the general head of 'Cataract'. Naturally, they formed a goodly propor--tion of the cases treated at the eye wards. Out of the total eleven hundred and twenty six, ninetynine cases wereseen. Of these sixtyone were operated on in the wards. The remain--der were either incipient cataracts, or cataracts ntherwise not suitable for operation. In connection with incipient opacities in the lens, the following case came under my

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1. Hamilton's Pathology 1894. Vol 1. page 153.

observation. W.S. aet.60 came to the eye wards complaining of failing sight which first commenced a year ago. On ex--aming his eyes with the pupils dilated with homatrophine, by the oblique illumination, and the distant direct method, incipient cataract was seen in both eyes. The striae were more numerous and larger in the right eye, his left shewing just the faintest trace of commencing opacity of the lens. On asking his occupation he stated he was a glass-blower, but had to stop work lately. Noticing the left side of his face was tanned and red-like whilst his right was more normal looking, I asked him if this was the side which was most exposed tothe furnace. He replied that it was and that this was his good eye, which opthalmoscopic examination con--firmed. Now, it has been the rule in glass blowers affected with cataract to see their left eye more frequently affected, and consequently the opacity further advanced than in their right eye, this being the result, probably, of the powerful actinic rays.[1] The above case is interesting as being an exception to the usual cases occurring in glass blowers.

I have stated that 61 cases of cataract were operated on. Of these 38 were Senile cataracts, and I shall first briefly describe the methods of treatment that were adopted in those cases, with their results.

The operation of extraction performed in all but four cases

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1. Berry's 'Diseases of the Eye ' page 177. Ed. 1892.

was the modified linear, combined with an iridectomy. In the four remaining cases, the simple extraction without an iridectomy was adopted. From observations, in comparing the two operations I think the extraction with iridectomy in the vast majority of cases is to be preferred, as giving the best results; although in order that one might be more certain of this, it would be necessary to see a similar consecutive number of cataracts removed by the simple extraction alone at the eye wards, and compare the ultimate results obtained by this method with those obtained by the combined method. Certainly as regards that evil sequela, namely, 'prolapse of the iris' the combined method shews that it is the safest operation of the two. Swanzy records[1] that in 200 consecutive extractions with the combined method, he had only two (1%) iris prolapses with incarceration; whilst Webster of New York in his 'Report on one hundred and eighteen cataract extractions, January 1895,' who follows the simple method had prolapse of the iris eleven times, or about 9 %, and even Knapp admits from six to twelve per cent of prolapses of the iris. The little gap produced by the excision of a portion of the iris allows ready escape of the aqueous humour, which is so liable to happen shortly after the operation, on some effort being made by the patient, without carrying the iris with it. From an aesthetic point of view

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1. Transactions. Opthalmological Society. United Kingdom. 1893. page 174.

no doubt, the circular pupil is much prettier, but aesthetic considerations to most old people are not of much value, and the coloboma in the iris was always made upwards, being thus to a large extent covered by the upper eyelid.

The four patients whose eyes were operated on by the simple method were selected ones, the selection being on the follow--ing grounds. First the patients were known as 'good ones,' having good control over themselves, in doing what was wanted during the operation, not being unsteady patients, and being able to lie still in bed for four to six days after the oper--ation. Second, in patients where the iris was likely to yield readily to the passage of the lens, that is the iris was elastic, the pupil dilating easily and well. Thirdly, in non-glautomatous eyes that is, where there was no indication for doing an iridectomy.

The operation of 'Artificial ripening' an iridectomy and slight stroking of the cornea was performed in three of the cases followed by subsequent extraction in from twelve days to five weeks. I observed that after the extraction these three preliminary iridectomy cases did not run a smooth course, whether as a result of the preliminary iridectomy or not, I cannot say. One had a severe iritis, a second had a slight prolapse of the iris, with a leaking anterior chamber for three days; and the third, considerable injection of the eye with pain and irritability for some weeks after the extraction.

They are included in the tabulated series of senile cataracts noted further on.

A word or so as to the instruments; these were not sterilised by boiling as is done by many surgeons, but were rendered as aseptic as possible by being thoroughly cleansed after oper--ations, before being laid past. This is an important point, as the coagulated blood and secretions are then soft and easily removed, and it is evident that in the cystotome and iris forceps, there are corners in which sources of mischief may easily lurk. Before use they were immersed in a solution of boric lotion, sometimes in carbolic. (1 in 20). I think it would be a good test of the ascepticity of one's instruments if, occasionally, before being introduced into the eye, they were tested by inserting them into a sterilised cultivating medium carefully, and seeing if cultivations of infective micro-organisms resulted. The knife, scissors and cystotome being more tender in their edges, if the surgeon objects to the boiling and antiseptic solution blunting them, they can be immersed in absolute alcohol for a short time, which makes them fairly aseptic.

About twenty minutes prior to the operation the eye was anaesthetised by means of a four per cent solution of the hydrochlorate of cocaine, made up with distilled water, and a few crystals of boracic acid. I think the using as a vehicle of a one in ten thousand perchloride of mercury solution prefer-

-able from an antiseptic point of view. I observed no bad permanent effects, local or general, from the use of the cocaine, but in several cases there occurred that peculiar local action of the cocaine where the eye from the constriction of its vessels and evaporation of the normal moisture from the surface of the cornea and conjunctiva shewed a semi-opaqueness of its surface, and in three of the cases a marked collapse of the cornea occurr-ed, it becoming convex inwards, especially if the eye was kept open during cocaining, and after the corneal section had been made. But this condition of the cornea did not remain long, as on closing the eyelids, and waiting a minute or two, the corneal surface again became clear, and returned to its outward convex condition.. Its vitality could not be much interfered with, as I observed fair healing occurred in these cases. Seeing that one of the actions of the cocaine is to cause constriction of the blood vessels, and so in operations lessen the amount of heamorrhage which is so liable to occur, I noted it was a good plan to instil several drops of cocaine solution before operating in eye cases in which it was necessary to use a general anaesthetic, as in some traumatic cataracts, and congenital cataracts in children, and in iridectomies in acute glaucoma it seemed to lessen the vascularity of the operations, diminishing the amount of bleeding into the anterior chamber, which bleeding is so apt to obscure the area of the pupil, and cause trouble to the operator, and in un-

-healthy eyes trouble to the patient subsequently from slow absorption.

The bandage used was a special knitted woollen one, stretch--ing across the two eyes and nose, being fixed with a tape round the circumference of the patients head, and another over the vertex between the two ears. The advantages of using and of adjusting such a bandage prior to the operation seemed to me to be great, because no undue movement of the patient's head after extraction, is necessary, not when dressing the eye afterwards. Then by it graduated elastic pressure over the eyes is obtained, and lastly it remains firmly in position. Before operating, the eyelids and surrounding parts, alongwith the surface of the eye and conjunctival cul-de-sac were care--fully cleaned by means of a one in five thousand solution of corrosive sublimate, moderately warmed, as the cocained eye is not so insensitive to cold and hot applications as it is to pain. The eye was also gently douched with the same solution frequently during the operation. The surgeon always stood behind the patient, an excellent position, if one is ambi--dextrous, but if one is not so, I think the suggestion of Mr Berry, namely to let the patient have the benefit of one's best hand should have weight with one, and so standing in certain cases at the patient's side. The corneal section was always made upwards by Von Graefe's knife, which it is hardly necessary to state should have anything but a dull edge, thus

avoiding all unnecessary injury to the tissues by stretching or tearing them with such a knife. It seems that the less the tissues are handled, the better for their vitality and so future healing.

A moderately sized conjunctival flap was in most cases included in the section, and although it adds slightly to the vascularity of the operation, and perhaps also to some little difficulty in the introduction of the cystotome etc, if it is not turned down somewhat, I think that these effects are counter-balanced by the good results that accrue, namely, greater rest and more rapid healing of the incision. Again it will also help to prevent the tendency to prolapse of the iris. The iridectomy was always made upwards by means of iris forceps and scissors. Then the cystotome was introduced, and the lens capsule lacerated. It is noteworthy that so thoroughly was this done in all the cases, that only once was it necessary to reintroduce it. The lens was then gradually coaxed out by excercising graduated pressure at the lower margin of the cornea. In all the cases, no great difficulty was experienced in this. The cortical matter and blood remaining were carefully stroked out, and the lips of the wound adjusted. The toilette having been finished thoroughly, for it seems to me to be a very important afterpoint to thoroughly remove all coagulated blood and semi-solid fluids, because if these small clots are left at the margin of the wound they form excellent media for the

growth of infective micro-organisms, having useful adjuncts in the darkness, warmth and moisture present. And although these clots may be sterile at the time of the operation, they are liable to become inoculated with septic organisms, as it is practically not possible to be certain of removing all organ--isms from the conjunctival cul-de-sac, by antiseptic douching, so they have a good chance to develop in the nutrient media at hand, and more so in those cases where the eye is kept bandaged for two days after the operation. In most of the cases of extraction, eserine (4 grains to the ounce) was instilled after the operation was completed, and in three cases directly into the anterior chamber. I observed no bad effects from the myosis so produced. Over the closed eyelids, lint soaked in 1-2000 solution of perchloride of mercury was ap--plied, some cotton wool and the bandage adjusted. Over the eye operated on, in addition, a Snellen's shield composed of aluminium was fixed by adhesive plaster. The first dressing was made in twenty four hours with the usual antiseptic pre--cautions. This was done for from four to six days, depending on the healed condition of the wound. I observed in four of the cases it was necessary to avoid keeping theeye bandaged for the usual number of days. These patients had some suppurative affection of the tear passages or chronic conjunc--tivitis, and in them after the first day or two, the eyelids were kept closed by a couple of small strips of plaster, and

the shields as a guard. As soon as the incision had healed and the anterior had reformed, atropine was instilled once daily to keep the iris away from the lens capsule and remaining cortical matter. The effect of the atropine in those cases should be carefully watched, as I noted in two of the cases, marked increase of tension resulted, and required the use of eserine for some time after. During the course of the operations there occurred slight loss of vitreous once only. In three of them I observed an unusual amount of haemorrhage but it did not interfere with the ultimate success. During the healing of the eyes no serious accident happened. Four of the patients injured their eyes. An accident which is likely to happen is the following one. Mrs F. aet.73, on the fourth day after the operation, whilst drawing up the bed--clothes with her hands, one of them slipped and unfortunate--ly came against the aluminium shield covering the eye, which could not have protected it very well, as it caused slight opening of the incision and produced a large haemorrhage into the anterior chamber, giving almost complete loss of percep--tion of light, which took some weeks to be absorbed. Eventually, however, fair vision resulted. (See Table). After this I warned all extraction cases to avoid the above accident. Another case of hyphaema occurred in an old man W.M. who shewed signs of mental enfeeblement. He got out of bed and hit his eye on one of the corners. It also cleared

up well. A third case had slight prolapse of the iris with some hyphaema; the former however, did not require any active treatment. It also did well. The remaining accident occurred in one of the preliminary iridectomy cases, and has been already mentioned. Iritis occurred in two of the cases. Under atropine and mercury both recovered well. Symptoms of glaucoma supervened in one patient, M.M, tension rising to + 2, and the eye also shewed signs of keratitis for a few days after the operation. With eserine, and subsequently pilocarpine, the tension diminished, and the patient left for home, using pilocarpine, her vision being $\frac{6}{36}$ with a + 10 D. These were all the accidents I saw, and in no case did the operation, or the above accidents cause a failure. One case only was unsatisfactory, but should be excluded as it was not the result of the operation. The following is the history;- Miss B. with ripe cataract in her right eye, and incipient in her left eye. The fundus of the latter was very unhealthy, there being extensive choroiditis, and a large staphyloma posticum. The right eye had a doubtfully good projection of light. After extraction and needling, on a view of the fundus being obtained, partial detachment of the retina was discovered. In all the cases with this exception, the vision obtained was not less than $\frac{6}{36}$. The exact vision in each case concluded, is recorded in the appended table.

The operation of Discission was performed forty times.

Two needles were always used. Besides the good results ob--tained as regards vision, a satisfactory feature about the cases was their quick healing, with little irritation; and in no single case did subsequent suppuration occur. This abol--ition of suppuration after the extraction of a cataract, is a great triumph for the antiseptic principles of Lister. In the days before the introduction of antiseptics, and when the Flap operation alone was performed, suppuration occurred in a large number of the patients at the Moscow Eye Hospital, and the Surgeons of Englandd resigned themselves to a total loss of 15 % of their extractions as an unavoidable evil.[1] The above series of cases tend to shew with what confidence we can recommend our uncomplicated cataract cases to consent to operations for the removal of their cataracts, and the good prognosis for vision which we may give.

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1. Brudenell Carter, 'Modern Progress in Opth. Medicine and Surgery.' Hospital. 1895.

Senile Cataracts.

No.	Name	Age	Operation	Remarks	Discission	Ultimate Results
1	J.C. m	68	Preliminary iridectomy and extraction	Slight prolapse of iris, with leaking anterior chamber	1	V = 6/24 partly + J 2 c + 10 D sph + 1·75 D. cyl + 14 D & cyl for near vision.
2	J.C. m	68	Extraction with iridectomy	Healed well.	1	V = 6/24 c + 10 sph + c + 14 D = J 2.
3	J.D. m	44	Do	No complications	1	V = 6/36 with + 10 D sph.
4	R.H m	72	Extraction without iridectomy	Fine result: healed quickly	1	V = 6/24 roughly. Patient could not stay long enough for glasses.
5	H.F. f	64	Extraction with iridectomy	Previous Conjunctivitis. Eye bandaged for ~~two~~ days	1	V = 6/24 with + 9 D and reads J 3 c + 13·5 D.
6	R.D. f	62	Do	Eye injected for 12 days	1	V = 6/24 c + 10 D sph + 2 D cyl. axes horizontal.
7	J.McG. m	64	Do.	Normal healing	1	V = 6/24 c + 10 D sph + 2 D cyl. axes horizontal.
8	M.P. f	60	Extraction without iridectomy.	Slight escape of Vitreous: iris tended to prolapse	1	V = 6/36 with + 10 D spherical.
9	W.L. m	73.	Extraction with iridectomy	Atropine increased tension greatly		Was still under treatment with eserine.
10	W.M. m	81	do do do	Hyphaema from blow.	1	V = 6/18 partly c + 10 D & J 3 c + 14 D.
11	W.M. m	81	do do do	Considerable redness for a fortnight	1	V = 6/18 partly c + 10 D + + 14 = J 4
12	P.R. m	71	do do do	Normal healing	1	V = 6/12 + J 1 c + 10 D sph + 3 D cyl axes horizontal and + 14 D sph + 3 D cyl.
13	M.J. m	72	do do do	Slight iritis for 4 days	1	V = 6/24 partly c + 10 D sph. + + 3 D cyl. axes 15°. reads Jaeger 1
14	M.F. f	73	do do do	Hyphaema from trauma	1	V = 6/18 partly + J 3 c + 9 D sph. 2 D cyl and 13 D sph, and 2 cyl axes horizontal
15	J.W. m	77	Simple extraction	Nothing abnormal	1	V = 6/24 with 10 D spherical
16	A.R. f	80	Extraction with iridectomy	Uneventful	1	V = 6/24 and Jaeger 2 c + 10·5 D sph and + 14·5 D. spherical.
17	Miss B.	60	do do do	do	1	V = 6/18 with + 13 D sph and + 17 D = J 2.
18	A.B. m	80	do do do	Injection for 10 days	1	V = 6/24 and J 2 c + 10 D and + 14·5 D spherical

Senile Cataracts, continued

No	Name.	Age.	Operation.	Remarks	Discission	Ultimate Results.
19	J.L. m.	69	Prelim^y. iridectomy. extraction	Conjunctivitis	1	V= $\frac{6}{18}$ and J 1 + 9 D. sph. 3 D cyl. axes horizontal
20	a.c.m.	60	Extraction with iridectomy	Healed slowly: increase of tension	1	V= $\frac{6}{24}$ and J 3 c + 11 D and 16 D sph.
21	M. K	80	do do do	Nothing abnormal.	1	V= $\frac{6}{9}$ and J 1 c + 10 D sph 3·5 cyl axes 35° and + 14 D sph and 3·5 D cyl.
22	Mrs H	73	do do do	Smooth healing		Patient could not stay longer: Roughly V + 10 D = $\frac{6}{36}$.
23	J.F.	52	do do do	Considerable haemorrhage at operation		To come again for discission.
24	M.K. f	80	Extraction c iridectomy	Anterior chamber 5 days in reforming	1	V= $\frac{6}{12}$ partly & J 1 c + 11 D and + 15 D sph.
25	E.M.	65	Relim: iridectomy. Extract.	Had some iritis		To come again
26	a.w	65	Extraction with iridectomy	Normal healing.	1	V= $\frac{6}{9}$ partly and J 1 c + 10 D & + 1 D cyl axes horizontal
27	M.M. f	45	do do do	Slight prolapse of iris hyphaema	1	V= $\frac{6}{24}$ J 4 c + 10 D sph and + 14 D sph.
28	Mrs K	76.	do do do	Prolapsed cornea from Cocaine.		Patient had to leave hospital V. roughly $\frac{6}{36}$
29	Mrs B	60	do do do	Healed well		Patient left to come again for discission
30	J B. f	37	do do do	Did well as regards operation	1	V= hand movements. Detached retina
31	C.W. f	69	do do do	Smooth healing		Left hospital V= roughly = $\frac{6}{36}$ + 10 D sph.
32	M.M. f	60	do do do	Glaucomatous tension. Eserine		Under treatment. V= + 10 D. time on watch.
33	J.H. m.	44	Simple Extraction	Uneventful.		V= time on watch c + 10 D. Had to leave.
34	Mrs T	60	Extraction with iridectomy	Good healing	1	V= $\frac{6}{24}$ & J 4 + D sph + 2 D cyl axes horiz: + 12 D
35	E.M.G. f	60	do do do	Done well		V= + 10 D $\frac{6}{24}$ partly
36.	J.M.G. m	59	do do do	Smooth course		V. at present = time on watch with + 13 D sph
37	Mrs S.	50	do do do	do	1	V= $\frac{6}{18}$ partly c + 10 D sph + 2 D cyl axes 90°.
38	J.B. m	57	do do do	do	1	V= $\frac{6}{18}$ + 10 D + 3 D cyl axes horizontal.

Of the 61 cases of cataract operated on, 11 were noted as belonging to the Congenital variety. With one exception they were all of the soft lamellar variety, the exception being a lad D.D, aged 21 years with double congenital cataract. The centre of each opacity had a dense white look, and was somewhat calcareous on extraction. He also had nystagamuss Thus, a large proportion of the cataract cases seen were congenital, there being nearly one for every three of the senile cataract cases treated. The youngest patient was two years of age, and the oldest thirtyfive. The type of individual in whom these congenital cataracts occurred was the highly neurotic one. They were very much afraid of the operations and were very nervous and unsteady patients during their performance. It was frequently necessary to have recourse to a general anaesthetic, not only in the younger patients, but also in the older ones to enable the extraction of lens matter to be safely accomplished. In three of them I observed their eyes were very much smaller than normal, the condition of micro-cornea being well seen. In treating them the operation of suction was not adopted, but the following was done. The pupil having been well dilated with atropine, which in several of the cases it was some--what difficult to do thoroughly, and with the usual anaes--thetic and antiseptic precautions already mentioned, one sharp pointed needle was introduced at the corneal margin,

the capsule of the lens pierced in various places, and the lens matter stirred up somewhat and the aqueous humour allowed to cause further softening of the lens substance. It is important to stir up the lens substance itself, but it seems to me doubly important to make sufficient openings with the needle in the anterior surface of the capsule of the lens, to allow the aqueous ingress to the lens matter through the lacerated capsule, and the swollen lens matter egress into the anterior chamber. It will also avoid great swelling of the lens in its capsule, and besides, it is more thorough in its desired results. The eye was only bandaged for eight hours and as soon as the lens matter seemed well dissolved, or when any signs of irritation or inflammation occurred, the extraction was at once proceeded with in the following manner. A small incision in the corneal margin having been made by meansof a keratome, most of the flocculent lens matter was extracted with the silver scoop. I may mention here the great aid which was experienced in carrying out the last part of the operation by the patients straining a little, and the operator gently pressing on the globe. Such a method of assistance one would never think of using in extracting senile cataracts. Of course, the large incision in the latter would prevent it. But seeing that the above operation of extraction had to be performed perhaps two or three times, before a clear-ish pupil was obtained, I think it shews much greater resist-

-ing power of the tissues in these congenital cataract cases, as compared with the senile, for they all stood the handling well. The little remaining lens matter was allowed to be absorbed which as a rule occurred in the course of a few weeks. The only accident I observed during the operation was the escape of some vitreous humour in three of the cases. This necessitated the stoppage of any further extraction for that day. It did not however, interfere with a good result. No case of suppuration occurred, and there were no failures. The eyes looked almost normal, having black circular pupils reacting to light.

Notwithstanding the greater number of operations performed in each case, their rather mal-developed eyes, three of them having also nystagmus, the ultimate vision results were much better than in the preceding senile cataract cases, as will be seen in comparing the two tabulated records. In one of the cases it will be seen full vision for a distance and near at hand was obtained.

Congenital Cataract Cases.

№	Name.	Age.	Operations	Remarks	Results
1	L.B.	6.	Needled twice Extraction once.	No complication. Other eye done previously	L.V. = $\frac{6}{18}$ C + D. sph + 1·5 D cyl axis 80° reads Jaejir 1 with + 14 D sph and cyl.
2.	I.M.C	5	Needled twice. Extraction once	Silly patient, being somewhat imbecile	Seems to see well. Too young and careless for glasses.
3	Mrs R.	33.	Needled once. Extraction twice	Smooth course	V = $\frac{6}{18}$ + 9 D. sph + 1 D cyl axis horizontal reads Jaejir 2. C + 13 D sph and cyl
4.	B.	2.	Needled twice	Eyes small	Pupil clearer. Left using atropine
5.	J.L.	11.	Needled once. Extraction once	Rapid development. about 12 weeks	Vc + 10 D sph = $\frac{6}{24}$
6.	D.S	15.	Needled once. Extraction twice	Little irritation. Other eye done previously	V = $\frac{6}{18}$ + 11 D sph & Jaejer 2 C + 14 D sph
7.	D.M.	35	Needled once. Extraction twice	Slight loss of Vitreous Slow absorption	V = C + 10 D "time on watch". Left for home using atropine.
8	D.D.	21.	Needled once. Extraction twice	Lens calcareous, somewhat. Slight loss of Vitreous.	V = $\frac{6}{9}$ + 9 D sph and Jaejir 1 C + 13 D sph
9	D.D.	21	Needled & Extraction Once.	Slight loss of Vitreous	V = $\frac{6}{12}$ C + 9 D sph and Jaejir 1 C + 13 D sph
10	J.L	10	Needled & Extraction once.	Slow absorption of lens matter	V = $\frac{6}{60}$ + 10 D sph. not quite cleared yet
11.	M.J.S	18	Needled once. Extraction twice	Slight loss of Vitreous.	V = $\frac{6}{36}$ C + 10 D. sph
12.	G.M.	27	Needled once. Extraction twice	Uneventful. Other eye previously.	V = $\frac{6}{6}$ and Jaejir 1 with + 14 D sph and 18 D sph. Both eyes had full vision.

Now, I come to deal with Traumatic Cataracts, which appear to me one of the most grave and urgent affections the organs of vision can sustain. In all, twelve cases came under my observation. Of these eleven were males, the remaining one occurred in an adult female, thus shewing the greater liability of the male population to accidents of the eye, as well as other accidents. With one exception the injury to the lens, in all the cases resulted from a penetrating wound, most frequently of the cornea, or at the corneo scleral margin. The exception was the result of a blow by a cork from an aerated water bottle on the front of the eye, it not causing as far as I could see an external wound, but, as is supposed, causing rupture of the capsule of the lens, with consequent traumatic cataract from action of the aqueous humour. The implement inflicting the wound in each case is noted in summary of the cases. One thing that impressed me particular-ly amongst the traumatic cataract cases, was, that only one case of septic inflammation due to a penetrating wound occurred in the twelve cases observed. This I think shews that the tissues so injured cannot be very liable to take on a suppurative action, seeing that the weapons which penetrated the cornea were not very likely to be aseptic. If I be right in this view, this potent source of trouble in most other penetrating wounds need not give us much anxiety in such in-juries to the eye, although it is one from which danger

might be expected. The main danger is the great risk which a penetrating wound has of setting up a sympathetic opthalmitis. This latter fortunately occurred only in one of the cases. It will be noticed under sympathetic iritis. The injured eyes were treated antiseptically by weak corrosive sublimate wash, and atropine instilled thrice daily to thor--oughly dilate the pupil, and so keep the iris away from the irritation of lens matter. It also allowed better action of the aqueous humour, and permitted the escape of swollen lens matter into the anterior chamber, and helped to prevent the increase of tension which might result in secondary glaucoma, if the iris was pressed forward on the periphery of the cornea, in the region of the canal of the schlemm. The eyes as a rule were not kept bandaged. In four of the cases it was necessary to proceed to extraction the day after admission, on account of increased tension and irritation signs. These symptoms occurred from three to five days after receipt of the injury. In one of these four patients enucleation was subsequently performed within a week as the eye was tender to the touch, and had no perception of light, to avoid sympathetic trouble. And in two of the other cases enucleation was also the treatment. In the others, the eye was saved, extraction being performed later. In one of the cases after partial extraction, a slight hypopyon keratitis resulted, but only lasted three days leaving a

fair eye to the patient. I observed a rare case of partial traumatic cataract in a girl fourteen years of age. She complained of dimness of vision on one side of her right eye. On examining the eye opthalmoscopically, a single streak of opacity occupying a fourth of the lens was beautifully seen. On questioning her as to a previous history of injury, she stated that about two years ago she had an accident to the eye, a fork having hit her on the eye. The opacity was strictly limited and corresponded to a single prong of the fork, not having spread as one would expect, throughout the lens to give a complete traumatic cataract. As to the ultimate vision results in these twelve cases, they naturally constitute the most unsatisfactory of all cataract cases. Each case is noticed specially in the following summary.

Traumatic Cataracts

No	Name	Age	Implement	Remarks	Results
1	G.S.	21.	Piece of Iron	Needled. Extraction. Some loss of Vitreous.	V = Counts fingers at ten feet
2	R.M.a.	29.	Stone	Needled	Had to leave Hospital.
3	P.C.	57.	Slate	Extraction: did well	V C + 10 D = 6/36
4	A.M.	36	Stick.	Needled. Extraction twice. Some loss of Vitreous.	Lens matter slowly being absorbed. V = hand movements
5	M.F.	38	Cork	Extraction. Enucleation.	Fear of sympathetic iritis
6	J.B	3	Knife.	Atropine and wash.	Absorbed somewhat, and left hospital.
7	J.H.	55	Thorn	Needled twice, Extraction once; Slight loss of Vitreous.	V = Counts fingers at six feet.
8	J.G.	27.	Coal	Extraction. Slight hypopion Keratitis for three days	V. C + 10 D = 6/60. Still clearing.
9	A.H	25.	Stone	Extraction	A good deal of lens matter to be absorbed
10.	A.S.	8	Knife	Extraction: Chlorine: injection. Enu: : cleation.	Sympathetic Ophthalmitis set up in other eye.
11.	J.F.	70	Packing needle.	Extraction with iridectomy	Had intense eczema from atropine. Could Count fingers at four feet.
12	a.c.	6	Knife	Enucleated	Only one, which became septic from injury; Eye was in condition of Chronic panopthalmitis

One of the commonest diseases treated at the Eye Wards was Conjunctivitis. Under the heads of simple or catarrhal, acute and chronic conjunctivitis, no less than seventy eight cases came under my observation. Several good examples of the spread of the catarrhal form in families were seen. One mother brought four of her children up for advice at one time, all, including herself, suffering from this affection. The treatment was usually by means of mild astringent washes as alum and boric, and an eyesalve in the form of calomel or boric ointment. I think the unguentum cetaceae with a minim or two of olive oil, preferable to vaseline as a basis for the ointment, because the latter seemed to me to cause slight congestion and irritation of the lids.

In the chronic forms of conjunctivitis, which in spite of long continued astringent washes and sedatives is an exceeding--ly tedious affection to have to deal with, I observed the patients got considerable relief from cold water applied exter--nally to the eyelids. In carrying out this treatment it is important to caution the patients to avoid stooping. The object of the cold water douching is to tone up the walls of the small blood vessels. Now, in stooping, these vessels are considerably dilated, so that the effect desired by the cold water treatment would not be obtained unless the head is thrown back to avoid the consequent bad effects of the stooping. There was no case of Diptheritic conjunctivitis seen, and only

three cases of Irritable conjunctivitis, that is the Episeler--itis of modern text books.

I came across the following not very common condition in a young boy W.P aged 14. He was brought complaining of weak eyes. Nothing abnormal was noted in the cornea, but on everting the lower lids, peculiar cicatricial looking tissue was seen to have replaced the normal conjunctival tissue. The mother gave a history of blebs having some time ago come out on his body, probably the bullae of Pemphigus. This disease would account for the eye affection. His refraction was tested and found normal. He was ordered to wear London smoke glasses, and use a boric eye wash.

Only two cases of Purulent conjunctivitis were seen. One of the patients had a gonorrhea; in the other the source of infection could not be traced. Both recovered without sloughing od the cornea.

Granular Conjunctivitis. (Trachoma) This fortunately is not, in the East of Scotland anyway, a common disease, as only six fresh cases presented themselves at the Eye Wards and one of these cases was from South Africa, and another of them was a doubtful trachoma. There were however, about a dozen old cases under treatment. The following are the notes of the doubtful trachoma case. R.D, fifty years of age, by occupation a hawker, was admitted on Aptil 9th 1895, with the diagnosis of acute granular conjunctivitis. The case was

thought by one observer to be Spring Catarrh. The patient states his eyes were quite well up till last February, when they commenced to water and be sensitive to light, and more or less painful. On admission there was a good deal of photophobia and a discharge of a glutinous character. The eyes are of the small hyper-metropic kind. On inspecting the palpebral conjunctivas of the eyes, both their upper and lower lids, but especially the lower ones, were seen to be intensely injected, and covered with papular elevations rather flat looking. In addition the ocular conjunctiva of the right eye shewed peculiar gummatous swellings, and the cornea had a few minute blood vessels running into it, but there was no ulceration of its surface. The corneal affection not being an ordinary pannus, the treatment of this disease proved very obstinate, both as regards relief of symptoms, and arresting the progress of the affections. Almost everything was tried. First brushing the affected parts with a 15 grains to the ounce solution of silver nitrate. Then the lapus divinus is addition to astringent and sedative lotions. On the 29th April the larger papules were squeezed, and their contents expressed by ring forceps. On the 15th May the patient was no better, and a 1-2000 solution of perchloride of mercury was injected subconjunctivally in the right eye in the hope of doing good. It however, seemed only to cause an aggravation of the inflammatory signs, and necessitated the stoppage of

any other active measures for some days, and the using of warm boric lotion and cocaine to relieve his pain. The thermo cautery was next applied to the gummatous swellings on the ocular conjunctiva with no better result. The injection of the lids continuing intense, the larger elevations were in--cised with a cataract knife, and free haemorrhage allowed to take place. Dusting with iodoform powder was next tried with a little benefit. His symptoms;- pain, photophobia, and lacrimation, not being so severe. These subjective symptoms were so severe at one time , that the patient wisned his eye to be enucleated to get relief. His vision, however, was good, equalling $\frac{6}{18}$, so local treatment was persisted in. The greatest relief to the patient's symptoms, with subsidence of the general injection, and diminution of the size of the papules was obtained by the insertion four times daily of Mules iodoform gelatine wafers. The eye was also kept tied up. I am inclined to put down much of this relief to the rest which was brought about by the keeping of the inflamed eyelids from their incessant movements. Both eyes were alternately placed under this treatment for a month, and at the end of this time the patient left the hospital a little relieved, although not very much change in the objective symp--toms was evident. Such was the course of the disease when in hospital. He was told to use iodoform dusting and boric lotion, and was given a pair of dark coloured glasses. I

I again saw the patient at the end of three months. The elevations in the conjunctivae were much the same. I looked carefully for any signs of shrinking of the granulations, and connective tissue changes, such as one would expect to find in granular conjunctivitis, but failed to find them, thus tending rather towards the disease being one of Spring catarrh. It may be worth noting that the patient had been in Egypt eight years previously. It is hardly possible that the patient then should have contracted Egyptian Opthalmia miscrief in his eyelids, and that it had remained dormant all these years, only to break out now.

There was seen only three cases of Follicular conjuntivitis. By far the commonest of all the eye affections observed, was that known as Pustular Conjunctivitis, or as it is sometimes called Phlyctenular Conjunctivitis. In all there were 98 such cases out of the total 1,126. The patients were chil--dren, usually under twelve years of age, and were weakly, or their vitality had recently been lowered by an attack of some of the exanthematous diseases, measles being a fruitful cause. Beyond the fact that these fevers leave a weakness behind, and so may predispose, there seemed nothing to me to suggest that they acted as effectual causes. Although this inflam--matory affection of the eyes is not in itself a serious con--dition, the patients, from the urgency of their symptoms namely the intense photophobia and lacrimation were as a rule

brought early for treatment by their guardians, and under mild antiseptic lotions, eyesalves and tonics inwardly, the in--flammation subsided, and the eye usually returned to its normal state. But, in not a few, before being under proper treatment, the inflammatory affection, I observed frequently was made much worse by that old fashioned and abominable remedy, poulticing. This remedy was generally adopted on the advice of some neighbouring old wife, and occasionally I regret to say, by medical practitioners. Tea leaves, bread and water, and cold water cloths were the poultices most commonly applied, with the result that many simple phlyctenules were converted into ulcers, and in two of these cases prolapse of the iris occurred from giving way of the floor of the ulcer.

Poulticing for inflamed eyes is a common remedy in this part of the country. 'Fire in the eye', 'injuries,' corneal ulcers etc, often have these warm moist, non-antiseptic appli--cations made with the result that frequently serious mischief is set up such as hypopion keratitis, and panopthalmitis. As illustrating the variety of poultices used, and the evils results arising therefrom, I record the following case from my note-book. Mrs R. 80 years of age, a healthy old woman was admitted on 16th April 1895 with a degenerated globe. Her history is as follows;- Eight months ago her eye was in--jured by a cork from a lemonade bottle striking it. It

became painful and inflamed. She promptly applied a bread and water poultice, with the result of making her eye worse. Next day she applied tea leaves, and after this linseed meal, carrots, turnips, porridge, in fact, she told me that almost everything she could think of was tried before she sought medical skill. On her admission the eye was totally dis--organised, and shrunken with vision extinguished. Enucle--ation was advised and carried out. Now here one had at first, probably only a simple abrasion of the corneal epithel--ium, with some inflammatory irritation following, to deal with, for the patient told me she had good sight for four days after receipt of the injury, which would probably have been amenable to treatment with mild antiseptic lotions and rest, the eye thereby being saved and disaster averted. The use of poultices in eye affections amongst the people themselves, cannot be too severely condemned.

In the subacute and chronic phlyctenular cases, calomel dusting often gave good results, and in a few obstinate cases counter irritation over the external surface of the upper eyelid with the solid nitrate of silver was, I observed followed by good results. This mode of treatment in some acute and sub-acute inflammatory affections of the eye was also adopted with excellent results

For the eczematous excoriation about the nostrils, caused by the excessive lacrimation, which although a very simple

trouble, is exceedingly disagreeable and painful to the little patients, an excellent mode of treatment is the following;- First the excoriated parts should be cleansed with a little warm boric lotion, and carefully dried with cotton wool, then some unguentum zinci oleatis should be taken on the end of a blunt probe or handle of a crotchet needle and thoroughly rubbed into the affected parts. If this is done twice daily for a few days, a cure results with great relief to the patients.

A considerable number of patients were observed as suffering from Blepharitis Ciliaris - fiftynine patients in all. Usually those affected were children, and the great neglect of this affection by their friends struck me very forcibly. The condition frequently accompanied conjunctival affections. The main difficulty in the treatment was to get a thorough removal of dried up secretions, from the roots of the eye--lashes, which is of such importance, before a yellow oxide of mercury ointment is applied. In not a few of the chronic cases the eyes were examined for some refractive error, and if any was found it was corrected, with considerable relief to the patient.

There were only two cases of Pterygium met with: One of the patients, a medical man, had been living in India for some time.

One severe case of Herpes Frontalis in a woman 50 years of age was observed. The conjunctiva was much inflamed, but

there was no corneal affection. Under almond oil locally, and quinine inwardly, the condition got very well.

Ulcers of the Cornea. Under the heads strumous, weak, superficial, central, marginal, dendriform, perforating, and septic there were 59 patients out of the 1126. This includes nine cases of hypopion keratitis. There were also five other cases of hypopion, the result of traumata. Many of these ulcers of the cornea, such as the central, superficial and perforating were secondary to phlyctenular diseases. One patient came with a large white deposit in an ulcer of his cornea from using the acetate of lead as an eyewash, which had been prescribed by a chemist, the chloride being deposited in consequence.

I propose now to note five of the cases of hypopion keratitis All the five were observed in individuals between the ages of 50 and 60, and all of them had some affection of their lach--rymal apparatus; three of them had a watery eye previously, and two of them had suppurative dacryocystitis. Then they all had increase of intra-ocular tension from T + 1 to T + 3. Four of them when first seen had intense chemosis of the con--junctiva, so much so that in three of them it was necessary to snip the oedematous conjunctiva before the condition was diagnosed, as being the result of a serpiginous ulcer. Lastly, all of them proved most obstinate in yielding to the recognised methods of treatment in such cases. A corrosive

sublimate eyewash, and iodoform ointment to the lids was used. It was necessary in them all to instil eserine to reduce the intra-ocular tension, and in three of them the ulcer was tinted fluoreseine, and the thermo cautery applied to the infiltrated area of the ulcer. Paracentesis had also to be done in four of them. It gave great relief for some hours afterwards but in each the anterior chamber reformed and filled with pus in other twentyfour hours, necessitating a second paracentesis.

I should like to mention the great benefit which I observed to result from the hypodermic injections of morphia in those cases. The patients' symptoms were much relieved, they got much needed sleep. And the morphia seemed to me to make its myotic influence felt too, for on the morning following the injections, the intra-ocular tension was appreciably less. So, in cases like the above, and in painful glaucoma, I think the opiate should be much more frequently used as a therapeutic remedy than it is at present. In the above five cases, as soon as the tension was reduced, atropine solution was instilled and its effects carefully watched.

One of the patients made a good recovery V - $\frac{6}{60}$. Another could count fingers at five feet. Two had only perception of light on leaving hospital, whilst the fifth one had the eye enucleated, the whole cornea being one mass of yellow pus, the tension = + 3, and the subjective symptoms of pain and con--stitutional disturbance so severe, that the eye being

thought irretrievably lost, enucleation was advised and carried out at once. On opening this eye after enucleation I found no pus in the vitreous, but a noteworthy point was the swollen condition of the lens, it being half as big again as a normal lens. This would probably explain the great increase of intra-ocular tension.

A point worth noting inthe treatment of corneal ulcers is that the patients always experienced great relief when the eye was tied up with an antiseptic dressing. In an acutely inflamed sensitive surface such as an acute inflammatory affection of the cornea, it seems to me to be against all physiological principles to have the inflamed surface incess--antly irritated by the rubbing over it of the eyelids, thus preventing rest which is the opportunity for repair, and is such an important therapeutic measure in the promotion of healing. In some cases where there is much purulent discharge it will do harm to bandage the eye, but where there is a moderate discharge, a piece of lint soaked in 1 in 2000 sublimate, some antiseptic cotton wool, and a bandage tightly applied, results as far as I have observed in much good and no harm. No doubt it might be argued that such a procedure, by the artificial retention of the secretions, favours the development of micro-organisms, thus tending to cause disaster. Surely this could be avoided by removal of the bandage and dressings, every hour, if necessary, washing away any discharge

with an antiseptic lotion, and the applying of a fresh anti--septic dressing. By this means the movements of the eyelid over the inflamed cornea would be much diminshed. The warmth and darkness present, consequent on the eye being tied up might also being objected to as favouring the growth of pus forming organisms, but this I think is counterbalanced by the good results which the darkness and moisture give. Thus the darkness causes a functional rest of the inflamed organ, and the increasedwarmth probably raises the vitality of the tissues, just as when the sulphate of eserine is used in some central corneal ulcers to contract the iris and so give a greater vascular surface in the vicinity of the cornea than would be the case if the pupil was dilated. Thus greater warmth results, and will help the tissues in their struggle against attacking organisms.

Another point I observed was, that in cases of threatening hypopion keratitis, or other suppurative condition, the timely use of salicylate of sodium, 15 grains thrice daily, seemed to check the formation of pus in some cases, perhaps by acting as a general antiseptic, and in some chronic ulcers of the cornea the administration of salicylates is followed by great improvement. One case I saw occurred in an old man who was under treatment for six weeks with a corneal ulcer, which shewed no signs of healing till I put him on large doses of saicylate of sodium.

Seeing that many of the ulcers of the cornea were classed as strumous, it is possible that some of them might be of a tubercular nature, although none of them that I observed had that characteristic of tubercular disease, namely 'progression' going on to disintegration of the tissues affected. Still it is well known that many corneal ulcers undoubtedly occur in tubercular subjects, as evidenced by tubercular glands and cicatrices in the neck etc. Such ulcers are often chronic, and yield very slowly to ordinary treatment. I would like to suggest in such cases the local application of lactic acid in a very dilute solution. My reasons for supposing that it might do good are, having observed that in tubercular ulcerations of the larynx, the local use of lactic acid was often followed by beneficial results, besides it is said that lactic acid acts especially on the diseased area, helping to remove the tubercular infiltration. No doubt, its effect will be somewaht that of a caustic, but stronger caustics are applied tothe cornea, as a xx grain to the ounce solution of nitrate of silver, and with good effects. It would, however, be advisable to try experimentally the local effect of lactic acid in various strengths of solutions on the eyes of some of the lower animals. In the applications to the larynx solutions of from twenty to eighty per cent are applied.[1]

Macbride. 'Diseases of the Throat, Nose and Ear. p.151. Ed.1895.

I observed the following case of Conical Cornea, M.B. a girl 16 years of age from the country came complaining of failing sight for the last twelve months. The vision of her right eye was $\frac{1}{60}$, and of her left $\frac{6}{24}$. On opthalmoscopic examination, decided conicity was seen but the apex was clear. Retino-scopy indicated compound myopic astigmatism of about nine diop-tres in her right eye, and six in the left. She was not much benefited by the lenses indicated by retinoscopy. But Rachel-man's lenses gave her much better vision, R V with 4 A = $\frac{6}{24}$ partly, and L V with 2 B = $\frac{6}{18}$. They were however, not prescribed her, she being instructed to rest her eyes and given tonics inwardly. Five months afterwards I again saw her and the condition of her eyes was unchanged. She was instruct-ed to present herself from time to time.

Out of the total eleven hundred and twentysix cases were twenty seven cases of Interstitial Keratitis. Many of them had the typical signs of inherited syphilis. In some I traced easily enough the syphilitic history, but in four I could not make out even a suspicion of syphilitic infection. The patients were at or near the age of puberty. In five of the older patients I ascertained that the onset of the symptoms was pre-ceded by an attack of influenza, it seeming as if some exciting cause besides the syphilitic poison giving a lowered vitality was necessary before the keratitis was set up. The course of one of the non-syphilitic cases was as follows: Mrs G. 38 years of age, a married woman had a severe attack of influenza early in spring. She has a large family, all of which are healthy. There was no history of miscarriages, or any signs

of the syphilitic infection. The patient was very depressed and anaemic looking. Her left eye shewed much photophobia and lacrimation, and she complained of great pain over the eye and frontal region. The eye was highly congested, the pericorneal injection being of a very bright colour. Her cornea had some haziness. In her right eye there was a faint injection (pink zone) of the subconjunctional vessels at the lower margin of the cornea, and in ten days, this eye had also the typical signs of interstitial keratitis. She was given internally small doses of perchloride of mercury with iron, and locally boric lotion and atropine thrice daily. The tension, however, of both eyes increased, which necessitat-ed the stoppage of the atropine drops. Blistering of the upper eyelid with solid nitrate of silver and emplastrum cantharides to the temple was followed by only temporary relief. Depletion by leeches applied to the temple also gave only slight relief. Cocaine locally gave most benefit. The tension, however, remaining high, sclerotomy in her right eye was done. This certainly reduced the intra-ocular tension somewhat, but in spite of everything the symptoms continued all summer, and it was only in August that her right eye shewed some subsidence of the intense inflammation, by a diminution of the congestion, and clearing up of the cornea, with lessening of the subjective symptoms. At the beginning of September both eyes were getting to their normal again, the cornea

clearing rapidly, atropine was used cautiosly.

Three cases of Kerato Globis were noted, and five cases of seleritis, one of them being the doubtful tubercular case already mentioned.

Three well marked cases of Kerato Iritis were also seen. I also observed twentyfour cases of Iritis. Six of these were classed as syphilitic, three as rheumatic, and only one as sympathetic, whilst of the remaining fourteen, two were of the traumatic variety; the rest had no aetiological prefix applied to them.

I will go into the sympatheitc case somewhat fully, as there some interesting points in connection with it. The patient A. S. a boy eight years of age, three weeks before admission to the eye wards, was playing with a penknife, when by some accident the blade penetrated his right cornea near its centre. The wound did not involve the ciliary region. When seen on the 24th July 1895 for the first time, traumatic cataract was present with iritis and some general injection of the eye. The tension was slightly increased, and his vision equalled perception of light only. In the hope of saving the eye extraction of lens matter was at once performed under chloro-form, and both eyes for the next few days carefully watched in case of sympathetic trouble arising. Atropine was in-stilled thrice daily. The signs of inflammation subsided, and no symptoms of irritation shewing themselves in the

sound eye the patient was allowed to go home, after being under treatment for ten days. In another ten days, however, the boy came to the Infirmary with the eye looking very unhealthy and with photophobia, lachrymation, and pericorneal injection in the other eye,- in fact a sympathetic iritis. The vision of the injured eye was only perception of light forwards, and with the sympatising eye $\frac{6}{60}$. On Mr Berry's suggestion on 14th August, five minims of freshly prepared liquor chlori were injected into the vitreous chamber, through an incision in the outer portion of the selerotic. Some of the liquor chlori was allowed to trickle on the selerotic wound, and a conjunctival suture introduced. On the 15th, the injection of the sympathising eye was much less, and the exciting eye did not shew any signs of inflammatory secretion. On the 16th, the sympathising eye looked much quieter, theinjections being very faint, the lachrymation little, and the boy com-plained of no uneasiness in the eye. The exciting eye, however, was thought to be better away, and was removed on the 17th. On the 19th, the sympathising eye looked much the same, pupil being well dilated with atropine. His vision was tested on the 26th and was much improved = $\frac{6}{10}$ nearly. On examining the fundus, the optic disc was more hyperaemic than usual, and its margin somewhat blurred. The retinal veins were dilated and tortuous, and there were some fine

floating opacities in the vitreous. The boy again left the Hospital on the 30th August, using atropine, dark coloured glasses, and mercurial inuction to the temple.

Observations. This case seems to be illustrative of a type of cases not uncommon, and has several points of interest. First, the attempt was made to save the boy's eye with apparent good result. The injured eye, however, from the first time I saw it, had a very unhealthy look, there being something in its appearance very difficult to describe - a sort of loss of natural brilliancy of the eye generally, with a more or less dead look about it, gave me the impression that it was just the kind of eye to set up sympathetic iritis. Secondly the injection of the liquor chlori into the vitreous of the exciting eye to act as an antiseptic, and so tend to prevent the development of further micro-organisms, and their migration to the sound eye, was undoubtedly followed by good results, as the objective signs of the sympathetic opthalmatis abated considerably, and I thought that the injection prevented any further development of the trouble. A point of note in connection with the injection of the liquor chlori, was that at the operation when the selerotic was perforated, some serous looking vitreous escaped, thus causing a lowering of the intra-ocular tension which might help towards the good result that occurred. Thirdly, in presence of a neuritis, which if sometimes present, is not usually visible on account of

the irido cyclitis giving rise to exudations on the pupils and in the vitreous, thus preventing a satisfactory view of the fundus. Fourthly, when the injured eye was exposed to the light, after being tied up, I observed the sympathising eye get watery, and the peri-corneal injection to become more marked. In addition to this case of sympathetic iritis, there were four old cases of sympathetic trouble under treat--ment in the wards. They are exceedingly sad cases. All of them ran an unsatisfactory course. One of them, a black--smith had slight perception of light in his only eye, and in spite of an iridectomy, extraction of viscid lens matter, and an iridotomy, his vision did not improve. It was notic--ed later that a grooving or furrowing of cornea was taking place, characteristic of shrinkage of the whole organ. The tension gradually became lower, mydriatics failing to have any effect, and at last the patient could not percieve the glimmer of light which he used to have. The other three patients also had poor vision. In one the tension was + 2, and haruly any iris could be got away, it was so degenerated. The remaining two, after an iridectomy and an iridotomy respect--ively, could only see to guide themselves.

When one reflects on the great risk of sympathetic opthalmitis resulting from a penetrating wound of one eye and that the ultimate prognosis is so bad once it has started, the cases running such an unsatisfactory and unfavourable

course, usually terminating in blindness or nearly so, it seems to me advisable in most cases of perforating wounds of the eye, to recommend enucleation, or evisceration of the injured organ, and that one should really do all he can to persuade the patient to sacrifice such an eye, especially within the first week after the injury, and so avoid the danger of sympathetic irido-cyclitis.

One feels entitled to anticipate from the injection of the liquor chlori, into the vitreous, better results for the future. The earlier the injection is made the better, and if necessary the injured eye can be enucleated subsequently. At least it seems to me a wise and reasonable thing to try this new treatment which gives prospect of success.

I have notes of seven cases of Glaucoma. All of them occurred in females, who were with one exception about fifty-five years of age. The exceptional one was thirty-nine. They were all thin nervous women. In one case, the disease was kept in check by eserine followed by pilocarpine. She had hyper-metropia to five dioptres, and suitable convex spectacles were given her, with instructions to avoid reading for more than ten minutes at a time, to prevent much congestion of the ciliary area. Iridectomy with good reduction of the intra-ocular tension was performed in two of the cases. Another had both a selerotomy and an iridectomy, and even then the tension remained high, in spite also of all myotics. One case with

cataract had an iridectomy only done. A chronic painful glaucomatous eye was enucleated. On section, it shewed marked cupping of the optic disc, marked thinning of all the coats of the eye, and increased fluidity of the vitreous humour.

In one of the above cases whose history I went into, I thought the glaucoma was set up by the wrong use of atropine. Another case also was seen at the Eye Wards, where a medical practitioner told his patient to wait till his cataract was ripe with the result of the patient being nearly blind, the case being one of glaucoma.

It seems desirable to mention the two latter cases, because there is no doubt that not a few eyes are annually lost in this country through the disastrous use of atropine alone, and missed diagnoses of glaucomatous cases.

This great risk of setting up glaucoma would be largely avoided if in eye complaints, before prescribing atropine drops, the great necessity of making a systematic examination of the eye were impressed on every one. Such an examination can be accomplished in a comparatively short time, and should include testing of the intra-ocular tension, with palpation by two fingers, one of each hand, the patient being made to look well down to avoid palpating the firmer ciliary body. But even if atropine is prescribed, its effects on tension should be very carefully watched.

Then, in old people, for ophthalmoscopic purposes

cocaine should preferably be used as a mydriatic, and in such old patients, I observed it dilated their pupils fairly well. It has only a slight risk of setting up glaucoma. If these methods were universally adopted, there is little doubt that not a few eyes would be saved annually from blindness.

I observed two cases of Intra-ocular tumours. Both were of the sarcomatous type. No case of glioma was seen. The first tumour case was that of a little girl three years of age, from Fife. Both her eyes presented a peculiar reddish brown appearance as if their had been a haemorrhage into their interior. The intra-ocular tension of both eyes was increased. New growth being suspected, she was admitted to be kept under observation. The patient was in poor health, and was unable to sit up in bed, she was so very weak. She also was very irritable, and looked vacantly before her. One day she suddenly took a temperature of 103° F, and broncho-pneumonia was suspected. She gradually got worse, and died four days after admission, having been removed to the Medical side two days before. On post mortem examination, a soft sarcomatous tumour with blood clot filled both eye balls. There were also extensive growths in various parts of the body. In the scalp, several large growths were found, which had invaded the calvarium, and the dura mater. On microscopical examination, the tumour was found to be of the small round celled variety. The optic nerves, unfortunately were not

secured for further examination, so it is not possible to say whether the sarcomatous growth arose from them. The tumour, however, was suspected of starting primarily in the eyeball. This case is rather rare, as the usual age for sarcomatous growths in the eye is late, or middle life, being rarely seen below the age of thirty-five,[1] whereas this sarcoma occurred at the age of three years. It may be interesting to mention that this was the only fatal case which occurred amongst all the eye patients, I observed.

The other tumour case was that of a man R . H. thirty--five years of age from Largs, whose iris presented at its lower third, a small round body about the size of a pea, and having a brownish hue, a melanotic sarcoma. There was no iritis, and the tension seemed normal. It is worth noting that the symptom which compelled this patient to seek relief, was pain in the eye. Excision was advised.

Four cases of Rodent ulcer involving the eyelids were observed. One of them shewed extensive growth of the epithelioma over the forehead, which had also invaded the right eye. It was too far advanced for operation. The remaining three had the growth removed by excision with the knife. The raw surface left was filled up with a graft from the arm, which took well. There was one interesting

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1. 'Nettleship', on'Diseases of the Eye' page 259.

case of grafting in a woman thirty years of age, whose right eye had its upper eyelid destroyed, and drawn up to the eyebrow by cicatricial tissue. Her left eye was entirely obliterated by cicatricial tissue, these conditions being the result of a severe burn which she sustained from falling on the fire during an epilectic fit. In consequence of the imperfect covering of the upper lid to the right eye, it was exposed, and inflammatory symptoms were present, there being some injection of the conjunctival vessels and slight superficial ulceration of the cornea. Thus the patient was in danger of losing all the sight she had, unless something was done. So, under chloroform, the remaining part of the upper eyelid was freed from its attachment to the eyebrow, by an incision parallel to the eyebrow, brought down, and united to the lower eyelid. In the raw gap left, a large oblique graft from the inner surface of the upper arm was planted. In about a month's time everything had healed, and the patient had practically a new upper eyelid, which she was able to close fairly well. Her eye was much less liable to be lost from inflammation supervening consequent on exposure which existed prior to the operation. She also expressed herself as feeling much more comfortable with the new eyelid. Al-
-though the eye in the above case was kept tied up for four weeks, I observed no bad symptoms in consequence.

Some Retinal Affections. I observed only five cases of Albuminuric Retinitis. All of them were males. The following is the history of one of them. J.R. a showman, to all appearance a strong looking man, came with the history that his sight was getting bad. He first noticed this at the Shooting Galleries a few weeks ago, as he could not get near the bull's eye, whereas formerly, he stated, he used to be an excellent shot. There was little diminution of his visula acuity, as he could read $\frac{6}{9}$ (Snellen's) On examin-ing his eyes opthalmoscopically well marked double albuminurie retinitis was evident. His urine contained a moderate amount of albumen. On questioning him, he admitted having to rise several times to pass water during the night. This case illustrates well the very insidious nature of chronic Bright's disease, and that the first indication of its exist-ence may be an eye complaint. It is also interesting as shewing that now and then the occurrence of eye symptoms sometimes lead to the detection of bodily disease elsewhere than in the eye, and not hitherto suspected by the patient.

There were four cases of Haemorrhagic Retinitis. Three of the four were females, and one of them was suffering from extreme anaemia. The fourth occurred in a patient suffering from diabetes. It had some of the appearances of an album-inuric retinitis, and were it not for the sugar in the urine, one would have been inclined to call it an albuminuric case.

I observed two obscure cases of localised retinitis. The vision in both was $\frac{6}{24}$, only one eye being affected. Opthalmo--scopic examination shewed slight haze in the vitreous and slight exudation by the side of the retinal vessels. Under function--al rest and antisyphilitic treatment, one of them in two months had normal vision. The other case was lost sight of.

Eight cases of Optic Neuritis were seen. In two of them, full vision was present at the time of examination. One case noted in a child had no other objective symptoms of any disease, and the condition slowly disappeared, the patient taking small doses of iodide of potash and syrup of the iodide of iron.

Of cases of Optic Atrophy thirteen came under my observ--ation. Strange to say, three out of the thirteen cases occurred in patients suffering from that " most terrible of all modern diseases ", general paralysis. The history of one of them is as follows;- A man forty years of age, from Nairn, was sent to the Eye Wards about his eyes, and was found to have atrophy of both his optic nerves. I also observed he had some nervous symptoms pointing to general paralysis, such as slurring of speech, loss of memory, but with no delusions of grandeur or strength. He complained rather of feebleness. Clouston and others have described cases in which this disease of general paralysis has started , it was thought from some peripheral portion of the nervous system

spreading by Wallerian degeneration of the nerve trunks to the cortex of the brain. In two of the cases of general paralysis seen, I thought it possible from their history that the optic atrophy was present before the onset of the general paralytic symptoms. It may, however, just have been a coincidence, the occurrence of atrophy with the general paralysis. Still, seeing that general paralysis is the result of pathological changes in the brain cortex and its coverings, it is reasonable to suppose that the two conditions had possibly some connection with one another, just as optic atrophy is frequently associated with diseases of the spinal cord. In three of the thirteen cases locomotor ataxy was present, and one of the cases of optic atrophy occurred in a patient affected with multiple cerebro spinal selerosis. Two of them, I thought, occurred as the result of tobacco amblyopia.

Congenital and other anomalies. A beautiful case of congenital pigmentation of the optic disc was met with in a patient, J.G. aged thirty four. The disc shewed several black spots of pigment scattered over its surface. He had a high degree of hyper-metropic astigmatism.

Medullated (Opaque) nerve fibres was encountered once. The white appearance was almost all round the disc. Patient had cataract in his other eye. He did not seem mentally

enfeebled, and his development physically was good.

There was noted also a case of Coloboma of the Choroid. Out of the total eleven hundred and twenty six, one case of Retinitis Pigmentosa was observed. Posterior polar cataract was present. I could trace no history of intermarriage.

One very large Subhyaloid Hæmorrhage was seen in a woman sent from the country with defective sight in her right eye. It had the well defined round edge, with the straight line.

Two cases of Embolism of the Retinal Artery occurred. In neither of the patients (both of whom were males) could any heart lesion be detected. The treatment adopted was massage of the eye, and iodide of potash internally. This gave some benefit in one of the cases. In the other, atrophy of the optic nerve supervened.

Hæmorrhage into the vitreous was seen in three cases. In one of them, treated with unguentum hydrargri rubbed into the temple, considerable absorption of blood took place.

I saw twelve cases with Detachment of the Retina. The actiology of the condition was in two of them (males) attri-buted to a strain caused by lifting heavy weights. Another to trauma from a blow by a ball. One had syphilis. In eight of them myopia was present, and in three especially choroiditis with a large staphyloma posticum was observed by the opthalmoscope. The remaining patient had simple presby-opia. I may state that in the three traumata cases

the refraction was normal, except in one of them who had hyper-metropia..

I met with one case of Rupture of the Choroid. It was caused by a blow on the eye from her teacher.

Under the heads of Choroiditis; Disseminated, Posterior Selero, Syphilitic, Serous, and Central Choroiditis, I observed altogether twenty-eight patients. Of these cases, four are worthy of notice. The four patients were all adults, about twenty years of age, each being affected with central choroiditis. Two of them were males, and two females. Their complaint was inability for writing work or needling, and in two of them frontal headache was also a symptom. One of the patients was a first years medical student. Each had a marked central defect of vision. On examining the eyes opthalmoscopically, there was seen a slight alteration of the pigment at the macula lutea, several pale yellowish somewhat circular looking spots being present. The rest of the fundus shewed no other pathological condition. In two of the patients, the choroiditis was only present in one eye, but in the other two in both eyes. The condition, however, was much further advanced in one of their eyes, and quite a recent choroiditis in their other eye. The aetiology of these cases is very obscure. I enquired carefully for a syphilitic history, but with a negative result.

The great importance of making certain that the macular region is normal on opthalmoscopic examination was forcibly

brought home to me in recognising the above series of cases as this condition is a serious one for the patients affected. In all of them homatropine was used to obtain a good view of the fundus.

The treatment recommended to these four patients was a holiday - a prolonged rest, to get themselves as high as possible in the broad band of health. The medical student was advised to discontinue studying medicine. And rest from light by means of dark coloured glasses, and the avoidance of all fine work. I am of opinion that rest in the treatment of this complaint is an important therapeutic measure, because light being the natural stimulus to the eye, must cause, when striking the fundus, a state of unrest in the layers of the retina, and especially the pigment epithelium layer, which is probably involved in the disease. Then an organ which is at work has a greater vascular supply than one at rest and this might tend to keep congestion and so increase the inflammatory mischief in the choroid. Internally the patients were given iron and perchloride of mercury in small doses. The prognosis in those cases is far from hopeful. I was only able to see one of them five months after, and the condition was much the same. The others I lost sight of.

Toxic Amblyopia, resulting as a rule from poisoning by the combined use of tobacco and alcohol, has a large number of patients under its head;-twentynine in all. All were male

patients, and between the ages of forty and sixty-eight. Most of them smoked that coarse black tobacco, some chewing it as well. Not one case, the result of cigarette smoking was seen. The treatment adopted with success was stoppage of all tobacco and liquor as well, and the administration of a tonic mixture of strychnia and iron, with a hopeful prognosis. In two of the patients, whose vision was reduced to a $\frac{1}{10}$ of the normal, vision was nearly normal after three months of the above treatment. The effects of tobacco poisoning are without doubt seen much more frequently at the eye wards, or perhaps it is more correct to state that it is more correctly diagnosed there than in the other domains of medicine. I am inclined to think that if the eye is affected so frequently and so markedly, from exceeding the bounds of moderation with tobacco, that other important organs must be just as frequently and markedly affected, although the aetiological condition is unrecognised. It is known that the heart's action is sometimes interfered with, the functions of the stomach or nerves controlling the same, and that obscure nervous troubles may be caused by tobacco, but how very seldom does one hear a physician attribute a patient's (who smokes) symptoms to the toxic effects of tobacco. It seems to me desirable that the colour scotoma which is so characteristic should be more frequently sought for by physicians in smokers troubled with obscure dyspepsia, and functional heart affections.

I observed one case of Uraemic Amblyopia. The patient camplained of great dimness of vision. On opthalmoscopic examination, no abnormal appearances in cornea, media, or re-tina could be detected. The urine, however, had copious albumen.

The following is a rather rare case of amblyopia. Mrs S, a married woman, forty-five years of age came from the country complaining of defective sight in both her eyes for the last week, also of seeing things all yellow. She also complained of headache. Her vision = $\frac{6}{24}$ in her right eye. Left vision = $\frac{6}{36}$. There was a scotoma in both eyes, which was most marked towards the centre of the field of vision. Her refraction was normal. Thinking I had to do with another uraemic case, I examined her urine but beyond the fact that it had a somewhat yellowish stain, no abnormal constituents, as albumen or sugar were found. I may mention that the fundi were normal. On questioning her if she had been taking any medicines, she informed me that she had been taking small powders for worms every day for the last six days, which had been prescribed her. I asked her to stop the powders, and gave her iodide of potash internally; also requested her to return in three days. This she did, and xantholopsia was absent from her left eye, and was just slightly evident to her with the right eye. Her headaches were much better, and the patient left for the country again.

I suspect the foregoing to have been a case of santonine poisoning. My reasons for this are, the rather suddenness of the onset of the amblyopia, the xantholopsy, the fact that the vision was more defective centrally than peripherally was in favour of some toxic agent singling out the central papillo macular fibres, or their nerve centres as in tobacco poisoning. (It appears to me more than likely seeing that the macular fibres lie in the centre of the optic nerves, that the toxic agents affected the nerve centres in the brain rather than those special fibres in the optic nerves.) Then the fact of the urine having a yellowish tinge was in favour of the santonine poisoning. Uraemia was excluded as there was nothing in the urine to indicate such a cause. The media and fundi seemed normal. She did not suffer from any hyperaesthesia of the retina which might account for the chromatopsia. Nor did she look like a hysterical individual in whom one would suspect hysterical amblyopia, and it was not like hemi-crania, as the symptoms had lasted for nearly a week, and beyond the headaches, she had none of the subjective symptoms of that disease. Then her own confession that she had been taking a course of little powders for worms, and that the condition improved at once on their being discontinued - all these facts point to the case having been one of santonine poisoning

Affections of Refraction and Accommodation. About one half of the total number of patients treated arrange themselves under this head, or five hundred and twenty seven cases in all This in a sense is a satisfactory feature to oculists, as it tends to shew that the optician is becoming more like our chemists, not a prescriber himself, but a maker up or manu--facturer of the oculist's prescription, which should always be the case.

On analysing the five hundred and twentyseven cases, I find that by far the commonest form of ametropia was that of hyper-metropia, two hundred and five of them being hypermetrops, Most of the patients were young children.

Next in point of numbers comes the compound hypermetropic astigmatism cases of which there were ninetyfour. In not a few of the above two classes of refraction, the patients developed a convergent strabismus, thirtynine of them having this complication, which was the means of their being brought to the hospital for treatment, and not the defect of vision.

Myopia only gave sixty five cases. This small number is to some extent accounted for by the fact, as Mr Berry points out[1] that "many myopes of the ordinary type having no retinal defect readily find how to correct the refraction themselves."

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1. Berry. "Diseases of the Eye." page 541. Edition 1892.

I observed that most of the cases of myopia were of a high degree, seventeen of them having myopia, or compound myopic astigmatism of over twelve dioptres. Two of the myopic cases had convergent strabismus, and eight had divergent strabismus. The next most common error of refraction was the compound myopic astigmatism variety , of which fiftyone cases were noted. Then the simple hypermetropic astigmatic variety with thirtyfive cases, and the simple myopic astigmatism cases with twentyone; and lastly and lowest of all were nine--teen cases of mixed astigmatism.

Six cases of irregular astigmatism are included in the above tables, as where they had any pronounced error of refraction, as regular astigmatism, they had the latter corrected with good results.

It is not surprising to see such a large number of patients affected with astigmatism, because the cornea is not a rigid structure, but is capable of being moulded by various causes, such as the muscles of the globe not causing pressure equally in all directions, and diseases such as ulcers of the cornea weakening its walls, allowing of unequal bulgings of its surface, and so causing the meridians of different refractive power.

I fitted thirtyseven patients suffering from Presbyopia with suitable convex spectacles. In doing so, Donder's rule seemed to me to give the patients too strong glasses, and

and that weaker convex lenses enabling the patient to do his work at a comfortable distance, always taking care to allow him one third dioptre extra as a margin, to avoid straining his accommodation were prefereable. The methods of diagnosis and treatment adopted in those refraction cases were the usual ones. Very frequently, in children especially, a drop of a four per cent solution of the hydrobromate of homa-tropine was instilled into one eye, and in old patients a little cocaine solution was used instead to dilate the pupil. This enables one to carry out retinoscopy much quicker. Although it is stated to be scientifically not so accurate to correct cases of refraction with their accommodation paralysed under the action of a mydriatic, I did not observe any cases tested in this way complain afterwards of non-fitting spectacles. My experience is however, that where a patient can sufficiently relax his accommodation by looking at a distant object, it is inadvisable to use a mydriatic, as there is undoubtedly some slight risk of the mydriatic setting up glaucoma, although I have not met with such a result. This risk, however, is rendered practically nil, if one is careful in using the mydriatic only when the intra-ocular tension of the eye is normal, and confining himself to the use of the hydrochlorate of cocaine in the case of old patients, a mydriatic, which in this class of patients does not tend to increase the intra-ocular tension, whilst it

dilates the pupil fairly well. Three cases of spasm of accommodation were treated with atropine and had their refraction tested afterwards. Only two cases of Paralysis of accommodation, the result probably of central syphilitic growths, were met with.

I observed that in not a few patients who presented themselves complaining of weak sight, their trouble was not so much due to the ocular defect, as to their general health being below par. In these cases after correcting the error of refraction by the adjustment of suitable spectacles to those that required it, thus giving rest to the eye, the administration of ferruginous tonics in both classes of cases, was generally followed by beneficial results.

In concluding this thesis, I would like to observe that my practical acquaintance with opthalmology has been of great advantage to me in private practice. During the last six months I was consulted by sixtytwo patients with errors of refraction which required correction. A large number of these patients were totally unconscious of any marked defect of their sight, even the most intelligent of them. For example, a clergyman and a medical colleague had each about five dioptres of compound myopic astigmatism, and never once thought of consulting an oculist.

Many patients were complaining of chronic headache, never suspecting that their latent ametropia had anything to do

with it, as the sufferers saw near and distant objects fairly well. On correcting their ametropia the headache in most of these cases was absolutely relieved.

I venture to think that every general practitioner of medicine should know something about ophthalmology. An acute ulcer of the cornea or an iritis, appears to me to require the same careful attention, and knowledge of the proper treatment as an acute pleurisy or pericarditis.

As illustrative of the great help one may receive from ophthalmology, I may record the following case which is at present under treatment in my private practice,- M. C. a tall well built man, healthy looking, thirty-seven years of age came on the 14th January 1896 complaining of general malaise, loss of appetite, and occasional vomiting of his food, for a few weeks previously. He also had vague shifting pains, but no complaint of headache His tongue was much coated. Hydrargum cum creta powders to be followed by an aperient, and some quinine and phenacetin were given him. He was also advised to take a milk diet. No improvement being observed after a few days of this treatment, he was sent to bed and kept under observation. This was the first time the patient had ever consulted a medical practitioner. His general surroundings at home have been fairly good, and he has led an outdoor healthy life. His condition during the first week he was kept under observation was as follows;-

Temperature varied from 97·8° to 98.2° F. There was very disagreeable foetor ex ore, which was treated by the frequent use of an antiseptic mouthwash. In addition to the symptoms already mentioned, as vomiting etc, he was much troubled with flatulence, but no abdominal pain. He had paroxysms of vomit-ing accompanied with very severe retching. The vomited matter consisted of partially digested material, very sour, and large quantities of tenacious mucus. Almost nothing was retained in his stomach, even milk and lime water in tea-spoonful doses was rejected. Washing out his stomach was attempted, but the patient refused to let the tube pass his teeth. So, all food by the mouth had to be stopped, and the patient kept alive by nutrient enemata twice daily. Constipation was the rule with him. Inspection of his abdomen shewed rather a retraction than distension. On pal-pation and percussion nothing abnormal was detected. His pulse was notably slow, average about fifty-five. There was no respiratory trouble. His urine contained no abnormal constituents, and his bladder was perfectly under his control. As to his nervous system;- for the last two days patient has had severe frontal headaches, sometimes intense paroxysms of pain which lasted about two minutes, but the pain was mostly of a dull aching character over the left frontal region. I examined his eyes, and found his vision and intra-ocular tension normal. There was no Argyll Robertson phenomena.

Opthalmoscopic examination, however, by the indirect method shewed a suspicion of commencing double optic neuritis, about one fourth of the outer margins of both optic discs being of a red grey colour, this part being blurred. It was impossible in the left eye to mark the edge of the disc at this blurred part, from the surrounding retina. In the right disc it was just possible to make out the edge of the disc through the red grey or blurred part. The fundi otherwise seemed normal. He had no feelings of giddiness and no ataxic gait. His patellar reflexes were exaggerated, especially the left. Tache cerebral was well marked. At times he was more or less dull, and in a stupid apathetic condition. His memory was very defective. The patient's friends, however, stated that he had never had been very brilliant mentally. Sleeplessness was a prominent symptom for which he had sulphonal and other hypnotics, with no great beneficial effect. Further notes of his case are as follows.- On February 2nd, he had some loss of control over his bladder, having to micturate at once when a certain amount of urine collected in his bladder, or else the urine would escape involuntarily. On the 17th February, the eyes shewed undoubted optic neuritis, the outer blurred portions of the disc in both eyes had increased till fully one half of the discs' margins were involved, and in the right eye it was now impossible to make out the outer margin of the disc. There was also considerable tortuosity and distension

of the retinal veins. His fields of vision, tested roughly appeared normal. He has been having large doses of the iodide of potassium which has relieved his headaches. On the 18th February, his urine commenced to dribble away, although there was no distension of the bladder. He was wandering more than usual, and seemed to have difficulty in replying to questions,-hesitation in expressing himself. On 22nd February, patient seemed weaker dull and sleepy, answered questions only slowly. He had little complaint of pain. There was no apparent change in the optic neuritis. He had retained a little milk and lime water. Temperature 97·9° F. Pulse 64. He was still getting the nutrient enemata. On the whole he seemed more comfortable, especially as regards pain and vomiting. On the 29th February the optic neuritis shewed some increase, only about a fourth of the upper and inner margins in both discs being clear. Patient does not attempt to change his position. He complained of nothing. On 5th March, the optic neuritis shewed no increase. Food however, was retained, so the nutrient enemata were stopped. Urine was still dribbling away. At times, the nurse states, he could answer questions quite correctly, but in a few minutes after, would be quite incoherent in his talk. He was losing flesh rapidly , and was getting into a semi-comatose condition. At first the above case presented many features of difficulty in arriving at a diagnosis. The question

was whether his symptoms were the result of cerebral or gastric trouble. On the one hand the foetor ex ore, the foul tongue, the vomiting with severe retching, the sour condition of the ejecta, the frontal headaches, could be accounted for by gastric derangement. But, on the other hand, the torpid condition of the patient, the mental aberration, the slow pulse, the subnormal temperature, the vomiting even although accompanied with severe straining, the constipation, the frontal headaches, the great aggravation and remission of his symptoms, all these indicated cerebral mischief. Immediately however, the opthalmoscopic examination was made, and double optic neuritis detected, there was no longer any doubt that the above indications, including the optic neuritis were the result of cerebral mischief, in all probability, a neoplasm. The above case is only one of many in which the opthalmoscope is of great assistance to the Physician in arriving at a correct diagnosis.